

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

TWO RATS FROM MOROTAI ISLAND.

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Among the mammals recently submitted to the U. S. National Museum for identification are two apparently undescribed rats. These are characterized as follows:

Rattus concolor solatus, subsp. nov.

Type locality.—Morotai Island, Gilolo Group, Moluccas, Netherlands East Indies.

Type specimen.—Male adult, skin and skull; No. 277317, U. S. National Museum; collected October 23, 1944, by J. F. C. and R. M. R.; original number 4.

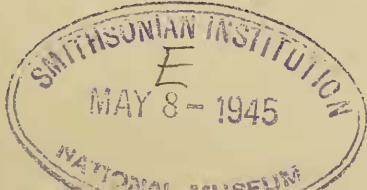
Distribution.—Known only from type locality.

General characters.—Mammae, 2-2=8. Pelage of upperparts stiff and harsh. Tail equal to or shorter than head and body. Rows of scales on tail 12 to 13 per 10 mm. Hind foot (c. u.) equivalent to about 20 percent of head and body length. Palate extending behind M³. Teeth like *Rattus concolor*, well cusped. M¹ with five roots. M³ not strongly reduced. Upper molar row equivalent to about 17 percent of condylobasal length. Bullae about 18 percent of occipito-nasal length.

Color (terms after Ridgway, Color Standards and Color Nomenclature, 1912).—General color of upperparts near grizzled olive brown, but darker on back than on sides. Hairs on back and sides drab colored, except for short light colored tip which varies from pinkish buff to cinnamon. Spines on back and sides blackish on apical 3 mm. and light colored for remainder of length. Interspersed with hairs and spines are long black overhairs. No underfur. Hairs on underparts olive buff with dusky bases. Upper surfaces of hands and feet whitish. Tail dark, unicolorous.

Pelage.—Stiff and harsh on back and sides. Black overhairs on upperparts up to 18 mm. in length. Noticeable admixture of flattened channeled spines on back and sides, each about 11 mm. in length. Hairs on underparts soft. Hairs on hands and feet short, 1.5 to 2 mm. in length and light colored. Tail moderately haired, the majority of these bristle

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hairs being as long as or only slightly shorter than the length of two scales. Tail moderately scaled, 12 to 13 rows of scales per 10 mm. Ears brownish black, sparsely covered with short hairs externally and short, about 14.5 mm. in length from notch (dried).

Skull.—Similar to that of *Rattus concolor ephippium*, but rostrum more robust and slightly wider at level of maxillo-premaxillary suture. Supra-orbital ridges distinct, extending backward from interorbital constriction along orbital borders of frontals and lateral surfaces of parietals to interparietal. Anterior edge of zygomatic plate (external to infraorbital foramen) straight and not projecting farther forward than in *ephippium*. Bullae narrow, moderately inflated and about 18 percent of occipito-nasal length. Incisive foramina elongated, extending backward to or behind level of front of anterior root of M^1 , widened medially and posteriorly, but attenuated anteriorly. M^3 varying from 1.2 to 1.3 in length. A minute antero-external cusplet on M^2 . Upper incisors smooth, rounded in front, and not retroflected like in *ephippium*, although this difference may be attributable to differences in wear.

Measurements.—*Type*: Total length, 260 mm.; tail, 130; hind foot (c. u.), 25. One male and two female topotypes, respectively: Total length, 240, 248, and 206; tail, 120, 118, and 100; hind foot (c. u.), 25, 25, and 25.

Skull (type and one female topotype): Greatest length, 33, 32.3; condylobasal length, 32.4, 30.4; zygomatic width, 16.1, 15.5; interorbital width, 5.6, 5.5; length of nasals, 11.9, 12.1; palatilar length, 15.7, 15.4; anterior palatal foramina, 6.4, 5.7; length of bulla, 5.9, 5.6; length of upper molar row, 5.1, 4.8; length of mandible, 18.6, 16.9.

Remarks.—According to the description published by Allen,¹ the Buru Island *Rattus burensis* has a pale rufous-brown coloration, spineless pelage, and silvery gray underparts, and thus is quite unlike *solatus*. Examination of the type of *bureauensis*, however, revealed that the hairs on the underparts are dark basally and washed terminally with either whitish or ivory yellow. Flattened channeled spines are present in the mid-dorsal region. The general coloration of this rat is also much darker and much more spiny than *Rattus raveni* on Celebes and the rats referred to *Rattus concolor ephippium* on Java and Borneo. The darker and more olive-brown coloration will also distinguish the Morotai rat readily from *Rattus todayensis* and *Rattus vulcani* on Mindanao, Philippine Islands.

Specimens examined.—Total number, 5, from the type locality.

Rattus morotaiensis, sp. nov.

Type locality.—Morotai Island, Gilolo Group, Moluccas, Netherlands East Indies.

Type specimen.—Male adult, skin and skull; No. 277312, U. S. National Museum; collected October 26, 1944, by J. F. C. and R. M. R.; original number 9.

¹ Allen, J. A., Bull. Amer. Mus. Nat. Hist., vol. 30, p. 336. December 21, 1911.

Distribution.—Known only from the type locality.

General characters.—Mammae, 2-2=8. Pelage excessively spiny, above and below. Tail normally longer than head and body. Rows of scales on tail 8 to 9 per 10 mm. Hind foot (c. u.) equivalent to about 18 to 22.7 percent of head and body length. Palate extending behind M^3 . Molar teeth well cusped. M^3 with five roots. A distinct cinguloid-ridge on anterior border of M^1 . M^3 not strongly reduced. Upper molar row equivalent to about 15.5 percent of condylobasal length. Bullae about 14.6 percent of occipito-nasal length.

Color.—General color of upperparts coarsely grizzled olive brown; somewhat lighter in worn pelage. Underparts cream buff, heavily spotted with russet on breast, throat and chin. In some specimens, the cream buff hairs on inguinal and abdominal regions have lighter russet tips. Upper surfaces of hands and feet near wood brown; toes lighter in color. Tail black, unicolored.

Pelage.—Excessively spiny, above and below, except for the rather soft hairs on the chin. No underfur; basal hairs short and sparse. Black overhairs on upperparts up to 35 mm. in length. Spines on back about 16 mm. in length, black on apical 4 mm. or with 1 mm. light tip. Individual spines channeled lengthwise on one side and convex on the other. Flattened hairs on hands and feet short, about 2 mm. in length, and light colored except for dark sub-basal band. Tail scantily haired, almost bare in old adults, but with 3 hairs per scale in immature individuals, the majority of these bristle hairs being slightly longer than the length of one scale. Tail coarsely scaled, 8 to 9 rows of scales per 10 mm. Ears black, sparsely covered with short hairs externally and short, about 15 mm. in length from notch (dried).

Skull.—Rostrum relatively slender; braincase normal; supraorbital ridges distinct from origin on frontals to about 5 mm. behind frontoparietal suture, without postorbital projections, and extending backward on parietals to interparietal in varying degrees of development. Infra-orbital foramen rather wide above; anterior edge of zygomatic plate (external to infraorbital foramen) nearly straight and either vertical or slanting backward (in contrast to the concave or forward slanting anterior edge in the case of *Rattus ringens coenorum*). Zygomatic plate projects distinctly forward in *coenorum* and scarcely at all in this rat. Bullae moderate in size, about 14.6 percent of occipito-nasal length. Incisive foramina elongated, narrow, not noticeably expanded medially and extending backward to or almost to level of anterior end of M^1 . M^3 varying from 1.6 to 1.7 mm. in length. A distinct antero-external cusplet on the M^2 and M^3 of two skulls (Nos. 277310 and 277315); this cusplet is vestigial on the other skulls. Upper incisors smooth, rounded in front, and not unusually deep antero-posteriorly; lower incisors slenderer and anteriorly lighter in color than upper incisors.

As compared with *Rattus ringens coenorum*, this rat has a much smaller skull, the greatest length averaging somewhat shorter, the rostrum is slenderer, the incisive foramina are less widely expanded medially and

posteriorly, the upper tooth row is shorter, and the zygomatic plate does not project forward dorsally.

Measurements.—*Type*: Total length, 405 mm.; tail, 213; hind foot (c. u.), 41. Three male and two female topotypes, respectively; Total length, 375, 383, 437, 397, and 344; tail, 208, 200, 216, 213 and 186; hind foot (c. u.), 38, 38, 40, 38, and 35.

Skull (type): Greatest length, 42.6; condylobasal length, 41.7; zygomatic width, 21.2; interorbital width, 6.4; length of nasals, 15.3; palatilar length, 21; anterior palatal foramina, 7; length of bulla, 6.5; length of upper molar row, 6.4; length of mandible, 25. Three male and two female topotypes, respectively: Greatest length, 42, 45, 44.3, 42.4 and 37.7; condylobasal length, 41.5, 42.7, 44, 41.7, and 35.9; zygomatic width, 22.3, 23.2, 23.4, 21.7 and 19; interorbital width, 6.2, 6.8, 6.7 and 5.6; length of nasals, 15, 16.2, 16, 16 and 13.3; palatilar length, 22.4, 21.7, 22.7, 22 and 18; anterior palatine foramina, 8, 7.5, 8.6, 8 and 7.2; length of bulla, 6.0,—, 6.1, 6.4 and 5.5; length of upper molar row, 6.4, 6.3, 6.2, 6.5 and 6.5; length of mandible, 26.8, 26.5, 27, 27 and 22.

Remarks.—This rat appears to be related more closely to the *Rattus ringens* group of New Guinea than to either the *Rattus rajah* group or other East Indian rats. Although the hind foot averages shorter than that of *Rattus ringens coenorum*, the lengths of head and body and of the tail are similar for adults. As regards cranial measurements, the occipito-nasal length of the skull and the upper tooth row of *coenorum* are somewhat greater than those of the Morotai rat. Furthermore, the rats of the *ringens* group do not have a pelage as spiny as that of the Morotai rat.

Specimens examined.—Total number, 7², from the type locality.

² Skull only.